AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

Claims 1-29 (Canceled).

30. (New) A link layer gateway computer operable to communicate a data packet from a source host computer selected from one of a plurality of host computers coupled to a first network medium to a destination host computer selected from one of a plurality of host computers coupled to a second network medium.

31. (New) The link layer gateway computer of Claim 30 further including the link layer gateway computer operable to communicated a data packet from a source host computer selected from one of said plurality of host computers coupled to said second network medium to a destination host computer selected from one of said plurality of host computers coupled to said first network medium.

32. (New) The link layer gateway computer of Claim 30, wherein one of said first network medium and said second network medium is an Ethernet network.

33. (New) The link layer gateway computer of Claim 30, wherein one of said first network medium and said second network medium is a 1394 network.

34. (New) The link layer gateway computer of Claim 30, wherein one of said first network medium and said second network medium is an Ethernet network and the other of said first network medium and said second network medium is a 1394 network.

35. (New) The link layer gateway computer of Claim 30, wherein one of said first network medium and said second network medium is a local area network.

36. (New) The link layer gateway computer of Claim 30, wherein one of said first network medium and said second network medium is a wide area network.

37. (New) The link layer gateway computer of Claim 30, wherein at least one of said first network medium and said second network medium is a wireless network.

38. (New) The link layer gateway computer of Claim 30, further including a network interface card to enable communication between said computer and one of said first network medium and said second network medium is an Ethernet network.

39. (New) The link layer gateway computer of Claim 30, further including a first network interface card to enable communication between said computer and one of said first network medium and said second network medium and a second network interface card to enable communication between said computer and the other of said first network medium and said second medium.

40. (New) The link layer gateway computer of Claim 30, wherein:

a first network interface circuit enables connection of said link layer gateway computer to said first network medium; and

a second network interface circuit enables connection of said link layer gateway computer to said second network medium.

41. (New) The link layer gateway computer of Claim 40, wherein:

the link layer gateway computer has an assigned IP address;

responsive to either of the first and second network interface circuits receiving a data packet, the IP protocol handler evaluates a destination IP address in the received data packet; and

the IP protocol handler is responsive to the received data packet if the destination IP address corresponds to the assigned address of the link layer gateway computer.

42. (New) The link layer gateway computer of Claim 41, wherein the link layer gateway computer is programmed to execute an application program coupled to communicate with the IP protocol handler.

43. (New) The link layer gateway computer of Claim 42, wherein:

the link layer gateway computer is programmed to execute a link layer protocol handler coupled to communicate with each of the first and second network interface circuits;

responsive to either of the first and second network interface circuits receiving a data packet comprising an IP communication, the link layer protocol handler evaluates a destination IP address in the received data packet; and

responsive to determining that the destination IP address does not correspond to the assigned address of the link layer gateway computer, the link layer protocol handler determines if a source host computer which transmitted the received data packet and the destination host computer designed by the destination IP address are not on either the first network medium or the second network medium.

44. (New) The link layer gateway computer of Claim 43, wherein the IP protocol handler is independent of the link layer protocol handler.

45. (New) The link layer gateway computer of Claim 43, wherein, responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not the same one of either the first network medium or the second network medium, the link layer protocol communicates the received data packet from the network medium connected to the source host computer to the network medium connected to the destination host computer.

46. (New) The link layer gateway computer of Claim 45, wherein:

the received data packet further comprises a hardware physical address;

the destination host computer comprises a network interface circuit coupled to one of either the first network medium or the second network medium;

the network interface circuit of the destination host computer is responsive to a destination hardware physical address; and

prior to communicating the received data packet from the network medium connected to the source host computer to the network medium connected to the destination host computer, the link layer protocol handler changes the hardware physical address to match the destination hardware physical address.

47. (New) The link layer gateway computer of Claim 41:

wherein the link layer gateway computer is programmed to execute a link layer protocol handler coupled to communicate with each of the first and second network interface circuits;

wherein, responsive to either of the first and second network interface circuits receiving a data packet comprising an address pairing communication, the link layer protocol handler evaluates a destination IP address in the received data packet; and

wherein, responsive to determining that the destination IP address does not correspond to the assigned address of the link layer gateway computer, the link layer protocol handler determines if a source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network medium or the second network medium.

48. (New) The link layer gateway computer of Claim 47, wherein:

responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network medium or the second network medium, the link layer protocol communicates a reply data packet to the source host computer which transmitted the received data packet;

the reply data packet comprises an address pairing; and

the address pairing comprises the destination IP address and a hardware physical address corresponding to a selected one of the first network interface circuit or the second network interface circuit, wherein the selected network interface circuit is coupled to the same network medium as the source host computer which transmitted the received data packet.

49. (New) The link layer gateway computer of Claim 47, wherein:

responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network medium or the second network medium, the link layer protocol communicates an address pairing data packet to the destination host computer designated by the destination IP address; and

the address pairing data packet comprises a source IP address corresponding to the source host computer which transmitted the received data packet and a hardware physical address corresponding to a selected one of the first network interface circuit or the second network interface circuit, wherein the selected network interface circuit is coupled to the same network medium as the destination host computer.

50. (New) The link layer gateway computer of Claim 47, wherein:

responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network medium or the second network medium, the link layer protocol communicates a reply data packet to the source host computer which transmitted the received data packet;

the reply data packet comprises an address pairing;

the address pairing comprises the destination IP address and a hardware physical address corresponding to a selected one of the first network interface circuit or the second network interface circuit, wherein the selected network interface circuit is coupled to the

same network medium as the source host computer which transmitted the received data packet;

responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network medium or the second network medium, the link layer protocol communicates an address pairing data packet to the destination host computer designated by the destination IP address; and

the address pairing data packet comprises a source IP address corresponding to the source host computer which transmitted the received data packet and a hardware physical address corresponding to a selected one of the first network interface circuit or the second network interface circuit, wherein the selected network interface circuit is coupled to the same network medium as the destination host computer.

51. (New) A computer, comprising:

a first protocol handler coupling a first network interface circuit to an application program;

a second protocol handler coupling a second network interface circuit to an application program; and

a link layer protocol coupling said first protocol handler and said first network interface circuit to said second protocol handler and said second network interface circuit.

52. (New) The computer of Claim 51, wherein said link layer protocol is at the same hierarchical level as said first protocol handler and said second protocol handler.

53. (New) The computer of Claim 51, wherein said link layer protocol is not part of an operating system of said computer.

54. (New) The computer of Claim 51, wherein said link layer protocol is not part of the operating system of said computer and, therefore, executes independently of operating system protocol(s).

55. (New) The computer of Claim 53, wherein said link layer protocol detects whether a data packet received on one of said first network interface circuit and said second interface circuit is intended for a computer coupled to the other of said first network interface circuit and said second interface circuit.

56. (New) The computer of Claim 55, wherein said link layer protocol, in response to determining that a data packed received on one of said first network interface and said second interface circuit is intended for a computer coupled to the other of said first network interface circuit and said second interface circuit, directs said data packet to said computer coupled to the other of said first network interface circuit and said second interface circuit.

57. (New) The computer of Claim 56, wherein said data packet does not reach any application program(s) of said computer.

58. (New) The computer of Claim 51, wherein said first network interface is bi-directionally coupled to said first protocol handler.

59. (New) The computer of Claim 51, wherein said first network interface is designed to receive a network medium different from the network medium to be received by said second network interface.

60. (New) The computer of Claim 51, wherein said second network interface is bi-directionally coupled to said second protocol handler.

61. (New) The computer of Claim 51, wherein one of said first network interface and said second network interface enables connection to an Ethernet network.

62. (New) The computer of Claim 51, wherein the other of said first network interface and said second network interface enables connection to a 1394 network.

63. (New) The computer of Claim 51, wherein one of said first network interface and said second network interface enables connection to an Ethernet network and the other of said first network interface and said second network interface enables connection to a 1394 network.

64. (New) The computer of Claim 51, wherein:

said first network interface circuit enables connection of said computer to a first network medium; and

said second network interface circuit enables connection of said computer to a second network medium.

65. (New) The computer of Claim 64, wherein:

said computer has an assigned IP address;

responsive to either of the first and second network interface circuits receiving a data packet, the IP protocol handler evaluates a destination IP address in the received data packet; and

the IP protocol handler is responsive to the received data packet if the destination IP address corresponds to the assigned address of the computer.

66. (New) The computer of Claim 65, wherein said computer is programmed to execute an application program coupled to communicate with the IP protocol handler.

67. (New) The computer of Claim 66, wherein:

said computer is programmed to execute a link layer protocol handler coupled to communicate with each of the first and second network interface circuits;

responsive to either of the first and second network interface circuits receiving a data packet comprising an IP communication, the link layer protocol handler evaluates a destination IP address in the received data packet; and

responsive to determining that the destination IP address does not correspond to the assigned address of the computer, the link layer protocol handler determines if a source host computer which transmitted the received data packet and the destination host computer designed by the destination IP address are not on either the first network medium or the second network medium.

68. (New) The computer of Claim 67, wherein the IP protocol handler is independent of the link layer protocol handler.

69. (New) The computer of Claim 67, wherein, responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not the same one of either the first network medium or the second network medium, the link layer protocol communicates the received data packet from the network medium connected to the source host computer to the network medium connected to the destination host computer.

70. (New) The computer of Claim 69, wherein:

the received data packet further comprises a hardware physical address;

the destination host computer comprises a network interface circuit coupled to one of either the first network medium or the second network medium;

the network interface circuit of the destination host computer is responsive to a destination hardware physical address; and

prior to communicating the received data packet from the network medium connected to the source host computer to the network medium connected to the destination host computer, the link layer protocol handler changes the hardware physical address to match the destination hardware physical address.

71. (New) The computer of Claim 65, wherein:

the computer is programmed to execute a link layer protocol handler coupled to communicate with each of the first and second network interface circuits;

responsive to either of the first and second network interface circuits receiving a data packet comprising an address pairing communication, the link layer protocol handler evaluates a destination IP address in the received data packet; and

wherein, responsive to determining that the destination IP address does not correspond to the assigned address of the computer, the link layer protocol handler determines if a source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network medium or the second network medium.

72. (New) The computer of Claim 71, wherein:

responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network medium or the second network medium, the link layer protocol communicates a reply data packet to the source host computer which transmitted the received data packet;

the reply data packet comprises an address pairing; and\

the address pairing comprises the destination IP address and a hardware physical address corresponding to a selected one of the first network interface circuit or the second network interface circuit, wherein the selected network interface circuit is coupled to the same network medium as the source host computer which transmitted the received data packet.

73. (New) The computer of Claim 71, wherein:

responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network

medium or the second network medium, the link layer protocol communicates an address pairing data packet to the destination host computer designated by the destination IP address; and

the address pairing data packet comprises a source IP address corresponding to the source host computer which transmitted the received data packet and a hardware physical address corresponding to a selected one of the first network interface circuit or the second network interface circuit, wherein the selected network interface circuit is coupled to the same network medium as the destination host computer.

74. (New) The computer of Claim 71, wherein:

responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network medium or the second network medium, the link layer protocol communicates a reply data packet to the source host computer which transmitted the received data packet;

the reply data packet comprises an address pairing;

the address pairing comprises the destination IP address and a hardware physical address corresponding to a selected one of the first network interface circuit or the second network interface circuit, wherein the selected network interface circuit is coupled to the same network medium as the source host computer which transmitted the received data packet;

responsive to the link layer protocol handler determining that the source host computer which transmitted the received data packet and the destination host computer designated by the destination IP address are not on the same one of either the first network medium or the second network medium, the link layer protocol communicates an address pairing data packet to the destination host computer designated by the destination IP address; and

the address pairing data packet comprises a source IP address corresponding to the source host computer which transmitted the received data packet and a hardware physical address corresponding to a selected one of the first network interface circuit or the second network interface circuit, wherein the selected network interface circuit is coupled to the same network medium as the destination host computer.